.SHEET 2: FACILITY/STORM DATA SHEET

Woodward-Clyde

CILITY

cility Name: SUPER SALVAGE INC City: WASHINGTON State: D C

mber of Sampling Sites: 3 Dates of Sampling: 3/4/93

ld Sampler Name: JOEL KAPLAN Telephone No.: (202) 488-7157

'ORM

ceptable Storm (Table 6):

	Minimum	Maximum
Volume (inches)		
Duration (hours)		

In Gauge Readings:	Date	Time	Inches
Start of rain	3/4/93	UNKNOWN	
~~After 3 hours~~ FINAL SAMPLE	3/4/93	9:10 AM	0.75
At end of rain	3/4/93	11:55 AM	1.40

ceptable Storm Check:

Date of last storm of 0.1 inch or more.

	Yes	No
1. At least 72 hours. since last 0.1 inch storm stopped?		
2. Was rainfall amount in line **e** between minimum and maximum in line **a**?	N/A	
4. Was rainfall duration in line **e** between minimum and maximum in line **b**?		

If you answered "no" to any question in item **g**, call your Woodward-Clyde Coordinator or the Sampling Assistance Hotline.

T FLOW MEASUREMENT METHODS

Site 1 METHOD 2 Site 2 METHOD 2

Site 3 METHOD 1C Site 4

ED ASSISTANCE?

Woodward-Clyde Coordinator Ann Geitner

Telephone (301) 258-9780

24-Hour Toll Free Sampling Assistance Hotline: 1-800-946-4646

You must use a touch-tone phone.

When you hear, "Please Enter PIN", enter: 1091431

WORKSHEET 4: FLOW DATA SHEET
METHOD 2: GUTTER DEPTH/FLOAT

Facility Location: _____ Sampling Date: 3/4/93

Sam

Sampling Site Number: 1

Sample Bottle Number	Step 1: Write clock time when measurement taken. → 1. Time of day	Step 2: Identify and mark upstream point and downstream point on gutter. Measure distance between points. Do only once. → 2. Distance between points (feet)	Step 3: Measure time it takes for float to travel from upstream point to downstream point. → 3. Time of travel (seconds)	Step 4: Measure depth of flow in middle of gutter at downstream point. → 4. Water depth (inches)	Step 5: Measure width of flow at downstream point. → 5. Flow width (inches)	Do In office — Step 6: Calculate flow rate. → 6. Flow rate (cfs)
1,2	9:10 AM	6	6.5	1½	12	0.115
3	10:10 AM	6	7	1½	12	0.107
4	11:00 AM	6	6.1	1	12	0.082
5	11:15 AM	6	4.6	1	12	0.108
6						
7						
8						
9						
10						

PH 7.5

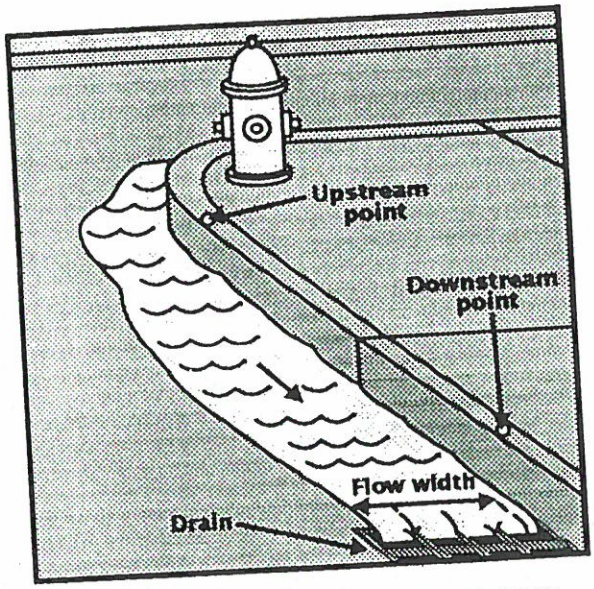
Multiply the 3 x

Step 2 ÷ Step 3 = 0.92

Step 4 ÷ 12 = .125

Step 5 ÷ 12 = 1,

Multiply



$$\frac{\text{Step 2}}{\text{Step 3}} \times \frac{\text{Step 4}}{12} \times \frac{\text{Step 5}}{12} = \text{Step 6}$$

Velocity x Water depth x Flow width = Flow rate

Note: If ponding occurs during rain event, move measuring location(s) upstream. If flow enters drain from more than one direction, prepare a worksheet for each direction. Write the sum of all flows on Worksheet 3.

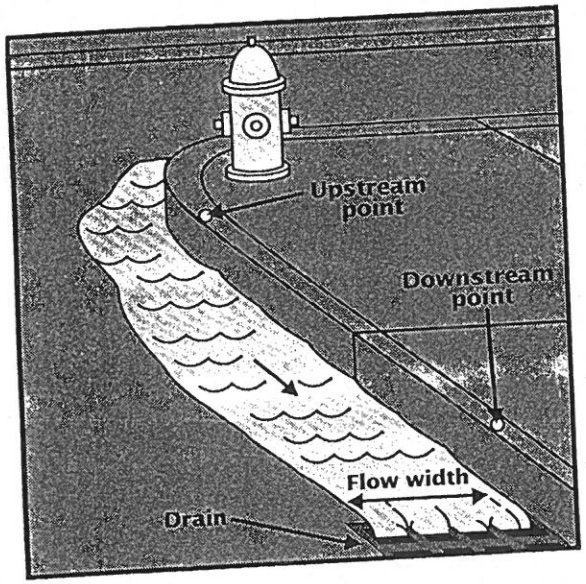
1-1-92

THOD 2: GUTTER DEPTH/FLOAT

Facility Location: _____ Sampling Date: 4/11/...

Sampling Site Number: 2

	Step 1	Step 2	Step 3	Step 4	Step 5	Do in office Step 6
	Write clock time when measurement taken.	Identify and mark upstream point and downstream point on gutter. Measure distance between points. Do only once.	Measure time it takes for float to travel from upstream point to downstream point.	Measure depth of flow in middle of gutter at downstream point.	Measure width of flow at downstream point.	Calculate flow rate
	1. Time of day	2. Distance between points (feet)	3. Time of travel (seconds)	4. Water depth (inches)	5. Flow width (inches)	6. Flow rate (cfs)
	pH 9.1					
2	9:20 AM	6	12	1	8	.003
	10:15 AM	6	7.2	1 1/2	8	.021
	11:05 AM	6	11.7	1/2	8	.014
	11:40 AM	6	5.5	1 1/2	8	.021
6						
7						
8						
9						
10						



$$\frac{\text{Step 2}}{\text{Step 3}} \times \frac{\text{Step 4}}{12} \times \frac{\text{Step 5}}{12} = \text{Step 6}$$

Velocity x Water depth x Flow width = Flow rate

Note: If ponding occurs during rain event, move measuring location(s) upstream. If flow enters drain from more than one direction, prepare a worksheet for each direction. Write the sum of all flows on Worksheet 3.

ORKSHEET 4: FLOW DATA SHEET
METHOD 10: RAINFALL/RUNOFF COEFFICIENT

Woodward-Clyde

Facility Location: _____ Sampling Date: 3/4/93

Sampling Site Number: 3

Procedure:

1. Drainage Area: Estimate area of land drainage to sampling site. Drainage area = 0.38 acres.

2. Runoff Coefficient: Estimate percentage of drainage area that is impervious (roofs and pavement). Assume runoff coefficient equals percent imperviousness, divided by 100. If runoff coefficient is less than 0.4, write 0.4. Runoff coefficient = 0.4.

3. Determine flow at sample times using following steps:

			Do in office		
	Step 1	Step 2	Step 3	Step 4	Step 5
Sample Bottle Number	Write clock time when measurement taken. ↓ 1. Time of day	Record the rainfall at the rain gauge. ↓ 3. Total rainfall (inches)	Record the time since the last flow measurement. ↓ 2. Incremental time (minutes)	Record the additional, or incremental, rainfall that has occurred since the last measurement. ↓ 4. Incremental rainfall (inches)	Calculate flow rate. ↓ 5. Flow rate (cfs)
Rain starts		0	0	0	--
1,2	9:35	.75	40	0	0
3	10:30	.94	55	0.21	0.035
4	11:20	1.18	50	0.22	0.040
5	11:55	1.4	35	0.22	0.057
6					
7					
8					
9					
10					

0.38 acres

0.4 0

Drainage area	x	Runoff coefficient	x	Step 4 x 60	=	Step 5
		Step 3				
Drainage area	x	Runoff coefficient	x	Incremental rainfall	=	Flow rate
		Incremental time				

0.38 x 0.4 x .21 x 60 = 192 ÷ 55 = 0.035

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WORKSHEET 3: SAMPLE DATA SHEET

Woodward-Clyde

Facility Location: _____ Sampling Date: 3/4/93 Sampling Site: 1

COLLECTING THE FIRST TWO SAMPLES

Where possible, collect the first two samples at each site during the first 30 minutes of runoff.

A. Put on clean latex gloves. Dip the plastic sample collection bottle or scoop in the water in the center of the flow. Completely fill the one-liter glass bottle (1-1) and large plastic bottle (1-2) labeled for that site using the plastic sample collection bottle or scoop as many times as necessary.

   Note: For holding ponds with detention time greater than 24 hours, collect the first two samples from water in the pond.

B. Measure the pH of the storm runoff or pond water in one of the bottles using the portable pH meter.

C. On the form below, for this site and these bottles, write the time and the pH level.

D. Place the cap on the plastic bottle and tighten.

E. Measure flow.

COLLECTING SAMPLES 3 THROUGH 10

Where possible, collect samples 3 through 10 at each site at 20-minute intervals for 3 hours.

A. Dip the smaller plastic bottle (i.e. Bottle 1-3) in the water. Fill bottle to top. If necessary, use the plastic sample collection bottle or scoop to fill the sample bottle.

B. Place the cap on the glass bottle and tighten.

C. On the form below, for this site and this bottle, write the time.

D. Measure flow.

SAMPLE DATA

Bottle Number	Bottle Size	Time Sample Taken	pH	Total Flow (cfs)
No. 1 and 2	one liter glass, large plastic	9:10 am	7.5	0.115
No. 3	smaller plastic	_____	X	_____
No. 4	smaller plastic	_____	X	_____
No. 5	smaller plastic	_____	X	_____
No. 6	smaller plastic	_____	X	_____
No. 7	smaller plastic	_____	X	_____
No. 8	smaller plastic	_____	X	_____
No. 9	smaller plastic	_____	X	_____
No. 10	smaller plastic	_____	X	_____

Facility Location: _____ Sampling Date: 3/4/93 Sampling Site: 2

ECTING THE FIRST TWO SAMPLES

ere possible, collect the first two samples at each site during the first 30 minutes of runoff.

A. Put on clean latex gloves. Dip the plastic sample collection bottle or scoop in the water in the center of the flow. Completely fill the one-liter glass bottle (1-1) and large plastic bottle (1-2) labeled for that site using the plastic sample collection bottle or scoop as many times as necessary.

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C. On the form below, for this site and this bottle, write the time.

D. Measure flow.

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Bottle Number	Bottle Size	Time Sample Taken	pH	Total Flow (cfs)
No. 1 and 2	one liter glass, large plastic	9:20 AM	7.1	.003
No. 3	smaller plastic	_____	X	_____
No. 4	smaller plastic	_____	X	_____
No. 5	smaller plastic	_____	X	_____
No. 6	smaller plastic	_____	X	_____
No. 7	smaller plastic	_____	X	_____
No. 8	smaller plastic	_____	X	_____
No. 9	smaller plastic	_____	X	_____
No. 10	smaller plastic	_____	X	_____

SHEET 3: SAMPLE DATA SHEET

Woodward-Clyde

Facility Location: _____ Sampling Date: 3/4/93 Sampling Site: 3

COLLECTING THE FIRST TWO SAMPLES

Where possible, collect the first two samples at each site during the first 30 minutes of runoff.

A. Put on clean latex gloves. Dip the plastic sample collection bottle or scoop in the water in the center of the flow. Completely fill the one-liter glass bottle (1-1) and large plastic bottle (1-2) labeled for that site using the plastic sample collection bottle or scoop as many times as necessary.

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COLLECTING SAMPLES 3 THROUGH 10

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A. Dip the smaller plastic bottle (i.e. Bottle 1-3) in the water. Fill bottle to top. If necessary, use the plastic sample collection bottle or scoop to fill the sample bottle.

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D. Measure flow.

SAMPLE DATA

Bottle Number	Bottle Size	Time Sample Taken	pH	Total Flow (cfs)
No. 1 and 2	one liter glass, large plastic	9:35 am	8.5	____
No. 3	smaller plastic	_____	X	____
No. 4	smaller plastic	_____	X	____
No. 5	smaller plastic	_____	X	____
No. 6	smaller plastic	_____	X	____
No. 7	smaller plastic	_____	X	____
No. 8	smaller plastic	_____	X	____
No. 9	smaller plastic	_____	X	____
No. 10	smaller plastic	_____	X	____